

REMARKS

Reconsideration of this application as amended is respectfully requested. Claims 1-42 are pending. Claims 1 and 22 have been amended. No claims have been cancelled.

The Examiner objected to the drawings. Applicant has amended Figures 1 and 29 and respectfully requests the Examiner withdraw the objection. The amended figures have been included in the form of red-inked originals. No new matter has been added.

The examiner objected to the specification, specifically at pages 7 and 73. Applicant has amended page 7. However, with respect to page 73, Applicant respectfully submits that the language is clear and that Applicant does not believe the Examiner's proposed change would make the portion of the specification clearer than it already is.

Claims 1 and 22 have been amended to particularly point out and distinctly claim, in full, clear, concise, and exact terms, the subject matter that Applicant regards as his invention. Specifically, the examiner stated that that last two lines of claims 1 and 22 contained language that stated that "bits of the plurality of coefficients of the less significant bitplanes" when it should have been "bits of the less significant bitplanes of the plurality of coefficients."

Applicant has amended the claim accordingly.

Claims 1, 3, 13, 18, 21, 22, 24, 34, 39, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,606,416 by Yip et al. (hereinafter "Yip") in view of U.S. Patent Number 5,999,634 by Abbott et al. (hereinafter "Abbott") and U.S. Patent Number 6,088,395 by Wang et al. (hereinafter "Wang"). Yip discloses an encoder that includes a bitplane memory for storing 32x32 coefficients in bitplanes. The coefficients are

the result of a conversion of data into 16 bitplanes from bitplanes 0 through bitplane 15.

Thus, Yip discloses storing all of the bit planes for each coefficient.

The Examiner indicated that Yip fails to disclose that only N bitplanes of each of the coefficients are to be stored. However, the Examiner believes that Wang teaches storing only N bitplanes of each of the coefficients. Specifically, Wang discloses a compression and decompression apparatus that provides for a compressing of video graphics signal by truncating each pixel a predetermined length of least significant bits (LSBs). More specifically, in column 3, lines 38-44, Wang discloses a compressing means that is coupled to a receiving means that sequentially receives a video graphics packet of a video graphics signal, and truncates each pixel for a predetermined length of the significant bits to form a compressed video graphics packet. However, the video graphics signal is not disclosed as being coefficients that result from application of a wavelet transform. Even so, the Examiner believes that one skilled in the art when confronted with the same problem as set forth by the present invention, would look to Wang's disclosure of truncating the significant bits and combine it with Yip.

Thus, the Examiner believes that Yip teaches that the claims are stored in the memory starting with the least significant bitplane and Wang teaches the predetermined number of least significant bits are not to be needed. However, the Examiner recognized that neither Yip nor Wang disclosed the following limitation.

wherein storing N bitplanes includes

storing an indication for each row of the plurality of rows
to indicate a location in said each row at which bits of more significant

bitplanes have started to be stored and after which bits of the less significant bitplanes are no longer stored.

(Amended Claim 1).

The Examiner believes that Abbott discloses such a limitation in abstract, lines 7-10. However, lines 7-10 of the abstract states

the pointers are used to address a memory array, each pointer in corresponding to a row in the memory array and the content of each pointer pointing to a memory element in the corresponding row.

(Abbot Abstract, lines 7-10)

Thus, the disclosure in Abbott is no more than the use of pointers to memory. There is no teaching of having an indication indicate in each row of a memory the location at which bits of more significant bitplanes have started and after which bits of less significant bitplanes are no longer stored. Abbott does not disclose this. Since the Examiner indicated that Yip and Wang do not disclose such a feature and Abbott does not disclose such a feature, Applicants respectfully submit that all the elements of the claim are not present in the combination. Therefore, Applicants respectfully submit that the present invention as claimed is not obvious in view Yip, Wang and Abbott.

Futhermore, Applicants respectfully submit that one skilled in the art would not look to combine the teachings of Yip, Wang and Abbott to arrive at the present invention as claimed. The present invention as claimed focuses on reducing memory usage for storing coefficients when not performing lossless compression. This is done by storing N bitplanes for each coefficient and allowing decoding to terminate after N bitplanes are decoded. Thus, the bit planes following the N bitplanes can be quantized. The present invention as claimed stores N bit planes along with an indication for each row with memory to indicate a location

in the row at which bits of more significant bit planes have started to be stored and after which bits of less significant bit planes are no longer stored. Thus, this feature is clearly not shown in the combination.

Applicants respectfully submit that one skilled in the art would not look to combine Wang, Yip and Abbott. In fact, Applicants respectfully submit that the combination appears to be based on Applicant's own disclosure, which would require the use of impermissible hindsight. More specifically, while Yip discloses performing wavelet transforms to generate coefficients and storing coefficients by bitplane in a memory, there is no discussion of truncating coefficients or only storing a portion of the bitplanes, as the Examiner admitted. The Examiner relies on Wang for such teaching. However, Yip does not teach or suggest a combination with Wang, and Wang does not teach or suggest a combination with Yip. That is, there is no disclosure in Yip that teaches, mentions, or discloses a need to store N bitplanes of coefficients with an indication to indicate where more significant bitplanes have started to be stored.

With respect to the present invention, for example, in one embodiment, where a counter stores a count, the count is an indication of a bitplane for a particular coefficient is stored in the memory. In this embodiment, where the counter for a particular coefficient has a zero, this may indicate that the corresponding bitplanes 0-7 are stored in the memory. However, in the case where a one occurs in bitplanes 8-15, such a counter would provide an indication of the location where the most significant bits have started to be stored. Thus, these counts provide information to indicate that information stored in the memory array from the beginning of the row up to the location in the row at the position indicated by the count is no longer needed. That is, that data can be truncated and provides for more efficient use of memory when storing wavelet coefficients.

Neither Yip, Wang nor Abbott is directed to this problem and thus, applicant respectfully submits that in view of the above, one skilled in the art would not look to combine the teachings of Yip, Wang and Abbott as set forth by the Examiner. Thus, the Applicants respectfully submits that the information as claimed is not obvious in view of a combination of Yip, Wang and Abbott.

Claims 2 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yip, Abbott, and Wang as applied to claims 1, 3, 13, 18, 21, 22, 24, 34, 39, 42 above and further in view of U.S. Patent Number 6,266,450 by Yip et al. (hereinafter “Yip 2”).

For at least the same reasons given above with respect to Claim 1, Applicant respectfully submits that the present invention is not obvious in view of a combination of Yip, Abbot and Wang and further in view of Yip 2.

Claims 4 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yip, Abbott, and Wang as applied to claims 1, 3, 13, 18, 21, 22, 24, 34, 39, 42 above and further in view of U.S. Patent Number 6,005,901 by Linz (hereinafter “Linz”).

For the same reasons given above with respect to Claim 1, Applicant respectfully submits that the present invention is not obvious in view of a combination of Yip, Abbot and Wang and further in view of Linz.

Claims 5 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yip, Abbott, Wang, and Linz as applied to claims 4 and 25 above, and further in view of U.S. Patent Number 6,275,531 by Li (hereinafter “Li”).

For at least the same reasons given above with respect to Claim 1, Applicant respectfully submits that the present invention is not obvious in view of a combination of Yip, Abbot and Wang and further in view of Li.

Claims 6, 8, 27, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yip, Abbott, and Wang as applied to claims 1, 3, 13, 18, 21, 22, 24, 34, 39, 42 above and further in view of U.S. Patent Number 6,442,302 by Klassen (hereinafter “Klassen”).

For at least the same reasons given above with respect to Claim 1, Applicant respectfully submits that the present invention is not obvious in view of a combination of Yip, Abbot and Wang and further in view of Klassen.

Claims 7 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yip, Abbott, Wang, and Klassen as applied to claims 6, 8, 27 and 29 above and further in view of Yip 2.

For at least the same reasons given above with respect to Claim 1, Applicant respectfully submits that the present invention is not obvious in view of a combination of Yip, Abbot and Wang and further in view of Yip 2.

Claims 9-12 and 30-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yip, Abbott, Wang, and Klassen as applied to claims 6, 8, 27, and 29 above and further in view of U.S. Patent Number 5,381,145 by Allen et al. (hereinafter “Allen”).

For at least the same reasons given above with respect to Claim 1, Applicant respectfully submits that the present invention is not obvious in view of a combination of Yip, Abbot and Wang and further in view of Allen.

Claims 14, 15, 17, 35, 36, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yip, Abbott, and Wang as applied to claims 1, 3, 13, 18, 21, 22, 24, 34, 39, and 42 above and further in view of U.S. Patent Number 6,658,159 by Taubman (hereinafter “Taubman”).

For at least the same reasons given above with respect to Claim 1, Applicant respectfully submits that the present invention is not obvious in view of a combination of Yip, Abbot and Wang and further in view of Taubman.

Claims 19 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yip, Abbott, and Wang as applied to claims 1, 3, 13, 18, 21, 22, 24, 34, 39, and 42 above and further in view of U.S. Patent Number 5,303,200 by Elrod et al. (hereinafter "Elrod").

For at least the same reasons given above with respect to Claim 1, Applicant respectfully submits that the present invention is not obvious in view of a combination of Yip, Abbot and Wang and further in view of Elrod.

Claims 20 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yip, Abbott, and Wang as applied to claims 1, 3, 13, 18, 21, 22, 24, 34, 39, and 42 above and further in view of U.S. Patent Number 6,549,673 by Ammicht et al. (hereinafter "Ammicht").

For at least the same reasons given above with respect to Claim 1, Applicant respectfully submits that the present invention is not obvious in view of a combination of Yip, Abbot and Wang and further in view of Ammicht.

In view of the foregoing, Applicant respectfully submits that applicable rejections and objections have been overcome.

Please charge Deposit Account No. 02-2666 for any shortage of fees in connection with this response.

Respectfully submitted,
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

Date: 8/25/01

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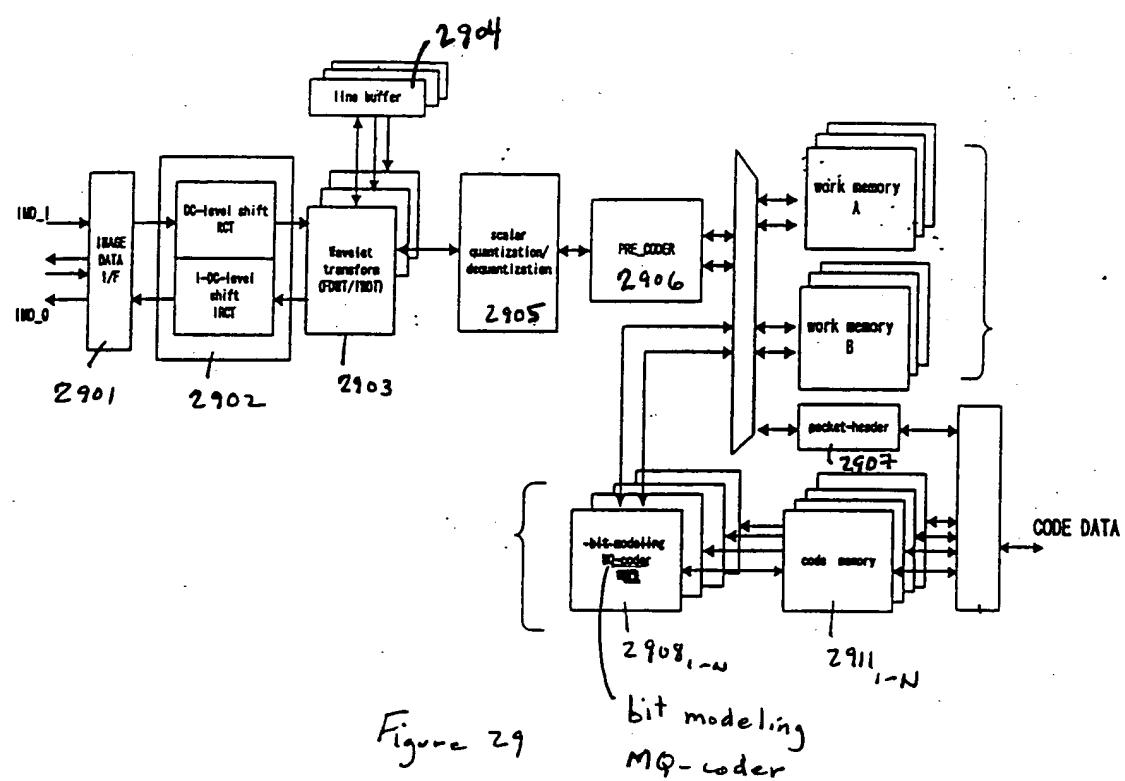
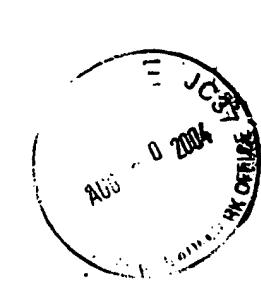


Figure 29